

What is claimed is:

1. A toll payment system which comprises:
a portable telephone on a car of a contractor of electronic toll payment service;
5 base stations connected with said portable telephone; and
a server connected with said base stations,
wherein said server comprises:
a first memory for storing locations of said base stations;
a second memory for storing names of contractors or their
10 car numbers and unit toll for each section along a highway;
a driving route identification unit for identifying a driving route of said portable telephone on the basis of said locations of said base station which are connected with said portable telephone;
15 a toll calculation unit for calculating a toll on the basis of said unit toll and the identified driving route; and
a toll charging unit for charging said portable telephone the calculated toll.
2. A toll payment system which comprises:
20 a portable telephone on a car of a contractor of electronic toll payment service;
base stations connected with said portable telephone; and
a server connected with said base stations,
wherein:
25 said portable telephone comprises GPS unit for identifying its location,
said server comprises:
a second memory for storing names of contractors or their car numbers and unit toll for each section along a highway;

a driving route identification unit for identifying a driving route of said portable telephone on the basis of said locations measured by said GPS unit;

a toll calculation unit for calculating a toll on the basis of
5 said unit toll and the identified driving route; and

a toll charging unit for charging said portable telephone the calculated toll.

3. The toll payment system according to claim 1, wherein said server comprises gate means for passing said car on the
10 basis of finishing said toll payment.

4. The toll payment system according to claim 2, wherein said server comprises gate means for passing said car on the basis of finishing said toll payment.

5. The toll payment system according to claim 1, wherein
15 said server comprises notification means for notifying said portable telephone of an exit lane on the basis of finishing said toll payment.

6. The toll payment system according to claim 2, wherein said server comprises notification means for notifying said
20 portable telephone of an exit lane on the basis of finishing said toll payment.

7. The toll payment system according to claim 1, wherein said driving route identification unit identifies said driving route of said portable telephone on the basis of connection
25 states between said mobile station and said base stations.

8. The toll payment system according to claim 7, wherein said base stations are connected with said portable telephone located at a tunnel, toll gate, or a service area along said driving route.

9. The toll payment system according to claim 1, wherein
said driving route identification unit identifies said driving
route of said portable telephone on the basis of connection
states between said portable telephone and a base station
5 which includes a region where an exterior magnetic wave is
shielded, but can be connected with said portable telephone.

10. The toll payment system according to claim 2,
wherein said driving route identification unit identifies said
driving route of said portable telephone on the basis of
10 connection states between said portable telephone and a base
station which includes a region where an exterior magnetic
wave is shielded, but can be connected with said portable
telephone.

11. The toll payment system according to claim 1,
15 wherein said toll charging means charges said calculated toll,
when a balance for said portable telephone is greater than
said calculated toll.

12. The toll payment system according to claim 2,
wherein said toll charging means charges said calculated toll,
20 when a balance for said portable telephone is greater than
said calculated toll.

13. The toll payment system according to claim 1,
wherein said toll charging means charges said calculated toll,
when said portable telephone communicates with said base
25 stations every prescribed time interval.

14. The toll payment system according to claim 2,
wherein said toll charging means charges said calculated toll,
when said portable telephone communicates with said base
stations every prescribed time interval.

15. The toll payment system according to claim 1,
wherein said server further comprises a third memory for
storing an ID of said portable telephone, wherein said name
of contractor and its car ID are identified by said ID of said
5 portable telephone.

16. The toll payment system according to claim 2,
wherein said server further comprises a third memory for
storing an ID of said portable telephone, wherein said name
of contractor and its car ID are identified by said ID of said
10 portable telephone.

17. A toll payment method using a portable telephone on
a car of a contractor of electronic toll payment service, base
stations connected with said portable telephone and a server
connected with said base stations, which comprises the steps
15 of:

storing names of contractors or their car numbers and unit
toll for each section along a highway;

identifying a driving route of said portable telephone on
the basis of said locations of said base station which are
20 connected with said portable telephone;

calculating a toll on the basis of said unit toll and the
identified driving route; and

charging said portable telephone the calculated toll.

18. A toll payment method using a portable telephone
25 with GPS unit on a car of a contractor of electronic toll
payment service, base stations connected with said portable
telephone and a server connected with said base stations,
which comprises the steps of

storing names of contractors or their car numbers and unit

toll for each section along a highway;

identifying a driving route of said portable telephone on the basis of said locations measured by said GPS unit;

calculating a toll on the basis of said unit toll and the
5 identified driving route; and

charging said portable telephone the calculated toll.

19. A computer program product for executing a toll payment method using a portable telephone on a car of a contractor of electronic toll payment service, base stations
10 connected with said portable telephone and a server connected with said base stations, which records the steps of:

storing names of contractors or their car numbers and unit toll for each section along a highway;

identifying a driving route of said portable telephone on
15 the basis of said locations of said base station which are connected with said portable telephone;

calculating a toll on the basis of said unit toll and the identified driving route; and

charging said portable telephone the calculated toll.

20 20. A computer program product for executing a toll payment method using a portable telephone with GPS unit on a car of a contractor of electronic toll payment service, base stations connected with said portable telephone and a server connected with said base stations, which records the steps of:

25 storing names of contractors or their car numbers and unit toll for each section along a highway;

identifying a driving route of said portable telephone on the basis of said locations measured by said GPS unit;

calculating a toll on the basis of said unit toll and the

identified driving route; and

charging said portable telephone the calculated toll.

21. A transportation management system which comprises:

5 a portable telephone;

radio base stations connected with said portable telephone in their communication areas; and

a server connected with said radio base stations,

wherein said server comprises:

10 a first memory for storing said radio base stations and their locations;

a second memory for storing a name of contractor of said portable telephone and a number of car of said contractor; and

15 a driving route identification unit for identifying a driving route of said car on the basis of the location stored in said first memory of the radio base station connected with said portable telephone.

22. The transportation management system according to
20 claim 21, wherein said driving route is identified on the basis of the location stored in said first memory of the radio base station which includes a section where exterior electromagnetic wave is shielded, but can be connected with said portable telephone.

25 23. A computer program product for a transportation management system which records the steps of:

storing a name of contractor of said portable telephone and a number of car of said contractor and tolls for each section;

identifying a driving route of said car on the basis of the location of the radio base station connected with said portable telephone, particularly identifying said driving route on the basis of the location stored in said first memory of the radio
5 base station which includes a section where exterior electromagnetic wave is shielded, but can be connected with said portable telephone.

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